



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,601	12/18/2001	Anthony M. Chiu	01-C-110	7934

30426 7590 02/17/2005

STMICROELECTRONICS, INC.
MAIL STATION 2346
1310 ELECTRONICS DRIVE
CARROLLTON, TX 75006

EXAMINER

CHU, KIM KWOK

ART UNIT	PAPER NUMBER
----------	--------------

2653

DATE MAILED: 02/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/025,601	Applicant(s) CHIU ET AL.	
	Examiner Kim-Kwok CHU	Art Unit 2653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed on 1/3/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 19-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 is/are allowed.
- 6) ☒ Claim(s) 19-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 19 and 20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Niss et al. (U.S. Patent 6,717,893) in view of Fujii (U.S. Patent 5,583,704).

Niss teaches an optical unit for use with an optical disc very similar to that of the present invention. For example, Niss teaches the following:

(a) as in claim 19, a laser diode 302 for generating a laser light beam (Fig. 3);

(b) as in claim 19, a photodetector 332 for detecting laser light returning from the optical disc 330 (Fig. 3);

(c) as in claim 19, an optical unit 104 having an elongated glass element for carrying light beams along its length (Fig. 3);

(d) as in claim 19, the elongated glass element 104 having angled surfaces with mirrors 318, 332, 320 formed on there (Fig. 3);

(e) as in claim 19, the mirrors 318, 332, 320 being positioned to direct a laser light beam from the laser diode 302 along a first path longitudinally through the elongated glass element 104 and out at an optical disc 330 (Fig. 3);

(f) as in claim 19, the mirrors 318, 320 reflecting a light beam returning from the optical disc 330 along a second path (opposite direction path) longitudinally through the elongated glass element 104 parallel and adjacent to the first path for detection by the photodetector 332 (Fig. 3; reflected light beams are parallel and adjacent to the emitted light beams along/parallel the elongated glass element 104); and

(g) as in claim 20, the elongated glass element 104 includes a first lens 328 for directing the laser light beam out from the unit at the optical disc 330, and a second lens 324 abutting the first lens 328 for receiving the returning light beam reflected from the optical disc 330 (Fig. 3).

However, Niss does not teach the following:

(a) as in claim 19, at least one of the mirrors comprises an oxide, nitride, sulfide, or fluoride of a transition metal.

Fujii teaches a reflective mirror having a layer 3a made of oxide, nitride, sulfide or fluoride of a transition metal

(Figs. 1 and 4; layer 3a is chromium sulfide; layer 26 is titanium oxide).

A reflective mirror in an integrated pickup should resist environmental corrosion so that its reflective surface has no defect. Hence, it would have been obvious to one of ordinary skill in the art to use a chromium sulfide or titanium oxide coating layer such as Fujii's as a protective layer in Niss's mirror means, because the chromium sulfide/titanium oxide layer not only has a high refractive index but it also maintains a smooth surface under high temperature.

3. Claims 19, 21 and 22 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Niss et al. (U.S. Patent 6,717,893) in view of Fix et al. (U.S. Patent 6,055,088).

Niss teaches an optical unit for use with an optical disc very similar to that of the present invention. However, Niss does not teach the following:

(a) as in claim 19, at least one of the mirrors comprises an oxide, nitride, sulfide, or fluoride of a transition metal;

(b) as in claim 21, the reflective material of at least one of the mirrors consists essentially titanium nitride film; and

(c) as in claim 22, the thin titanium nitride film has a reflectivity of about 62 percent.

Fix teaches a reflective mirror having a layer made of:

(a) oxide, nitride, sulfide or fluoride of a transition metal (Fig. 1; column 6, lines 55-63);

(b) the reflective material of at least one of the mirrors consists essentially of a thin titanium nitride film; and

(c) the reflectivity of the titanium nitride film can be controlled over a range (Fig. 1; column 5, lines 50-65).

To control the light transmission of a reflective mirror, it would have been obvious to one of ordinary skill in the art to use a titanium nitride layer such as Fix's as a reflective film in Niss's mirror means, because the titanium nitride layer having light transmission properties which can be adjusted.

Since the Fix's reflective film of titanium nitride has an advantage of controlling its reflectively, it would have been obvious to one of ordinary skill in the art to adjust the light reflectivity in an optimal range such as 62 percent as claimed by Applicant.

Allowable Subject Matter

4. Claims 1-11 are allowable over prior art.

5. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claim 1, the prior art of record fails to teach or fairly suggest an electro-optical device having the following features:

(a) the electro-optical device comprising a semiconductor chip having analog-to-digital conversion circuitry and logic circuitry;

(b) first and second photodetectors on the semiconductor chip in electrical communication with the analog-to-digital conversion circuitry;

(c) a laser diode supported by the semiconductor chip oriented to emit a laser beam in a first direction;

(d) an optical unit supported above the semiconductor chip, the optical unit having a first mirror aligned to reflect the laser beam from the first direction to a second direction;

(e) a first lens for directing the laser beam outward to strike the surface of an optical disc;

(f) a glass members for directing the laser beam from the second direction to the first lens;

(g) a second lens for receiving an information-containing beam from the optical disc;

(h) a second mirror for splitting the information-containing beam into first and second component beams; and

(i) a third mirror for directing the first component beam at the first photodetector, the second component beam passing through the second mirror in a direction at the second photodetector.

As in claim 8, the prior art of record fails to teach or fairly suggest an optical unit having the following features:

(a) a base element 37 including a first mirror for reflecting light from a first direction from the laser to a second direction;

(b) a lens element including second and third mirror;

(c) the second mirror being positioned relative to the base element to reflect laser light from the second direction to a third direction;

(d) the third mirror being positioned relative to the second mirror to reflect laser light from the third direction to a fourth direction;

(e) the lens element further including first and second lenses;

(f) the first lens being disposed to direct laser light from the fourth direction at the optical disc;

(g) the second lens being disposed to receive light reflected from the optical disc and direct it at the third mirror; and

(h) the third mirror being partially reflective to permit light to pass through at a first photodetector.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any response to this action should be mailed to:
Commissioner of Patents and Trademarks Washington, D.C. 20231
Or faxed to:

(703) 872-9306 (for formal communications intended for
entry. Or:

(703) 746-6909, (for informal or draft communications,
please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park
II, 2021 Crystal Drive, Arlington. VA., Sixth Floor
(Receptionist).

Any inquiry of a general nature or relating to the status
of this application should be directed to the Group
receptionist whose telephone number is (703) 305-4700.

Any inquiry concerning this communication or earlier
communications from the examiner should be directed to Kim CHU
whose telephone number is (703) 305-3032 between 9:30 am to
6:00 pm, Monday to Friday.

KC 2/15/05

Kim-Kwok CHU
Examiner AU2653
February 15, 2005

(703) 305-3032



TAN DINH
PRIMARY EXAMINER